

IN THE CLAIMS:

Cancel Claims 1-27 without prejudice and add Claims 28-56:

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28.(new) Process for recording deformation of an object (1), comprising the steps of

recording a sequence of images of the object (1) during deformation,

determining phase images from the recorded images,

forming a differential between two sequential phase images ($n+1$, $n+2$), and

adding the differential to a first image, whereby incremental deformations are integrated to provide total deformation of the object.

29. (new) The process of Claim 28, comprising the additional step of

forming a differential between each two sequential phase images ($n+1$, $n+2$, ...), and

adding each said differential to a preceding image.

30. (new) The process of Claim 28, comprising the step of

recording the images with interferometry or projection.

31. (new) The process of Claim 28, wherein the interferometry is selected from holographic interferometry, electronic speckle pattern interferometry (ESPI) and speckle shearing interferometry and the projection is either a grid projection process or a Moiré process.

32. (new) The process of Claim 28, wherein each said phase image is determined from a single recorded image.

33.(new) The process of Claim 28, comprising the step of irradiating the object (1) with one of coherent radiation, coherent light, partially coherent radiation and partially coherent light.

34. (new) The process of Claim 33, comprising the step of irradiating the object (1) with at least one laser diode.

35. (new) The process of Claim 34, comprising the step of irradiating the object (1) with several laser diodes having either overlapping or non-overlapping illumination areas.

36. (new) The process of Claim 28, comprising the step of recording the images of the object (1) with a hand-held sensor (2).

37.(new) The process of Claim 28, comprising the step of precluding a disrupted image or phase image or the differential formed therefrom, from evaluation.

38.(new) The process of Claim 37, comprising the step of filling a gap caused by the precluded image or differential, with at least one of a preceding and subsequent differential.

39.(new) The process of Claim 28, comprising the step of visualizing the recorded images or phase images or differentials formed therefrom , as a film.

40.(new) The process of Claim 28, comprising the step of comparing time frames or phases of the deformation with one another.

41.(new) The process of Claim 28, comprising the step of subtracting a whole body deformation or an undesired deformation of the object (1) from the total deformation.

42.(new) The process of Claim 41, comprising the step of determining the undesired deformation from a reference measurement.

43.(new) The process of Claim 41, comprising the step of subtracting the whole body or undesired deformation from the total deformation in the images or phase images prior to forming the sum of the differentials between the images or phase images.

44. (new) The process of Claim 29, comprising the steps of using a certain image as a starting image, calculating the differentials of two sequential images and successively adding the differentials together, and

recording the images during advancing deformation of the object (1).

45.(new) The process of Claim 30, comprising the step of providing an interval between two adjacent interference or projection lines of at least four pixels, to ensure the lines are readily distinguishable even when an image or

phase image is omitted.

46.(new) The process of claim 36, comprising the step of maintaining displacement between two sequential images no greater than one micron.

47.(new) The process of claim 29, comprising the steps of calculating deformation between two random recording times from a 2π modulated sum of the differentials of all intervening frames,

forming a differential (n) between a subsequent phase image (n + 1) and a preceding phase image (n),

forming a differential (n + 1) from a subsequent phase image (n + 2) and an immediately preceding phase image (n + 1), and

continuously adding up all formed differentials,

whereby a sum of the integrated differentials yields the total deformation of the object (1).

48.(new) The process of claim 47, comprising the step of calculating a series of deformation images for each image or phase image, by calculating a sum of all (n) subsequent deformations (n = 1, 2, 3. . .).

49. (new) The process of Claim 43, comprising the steps of placing a tire, as the object (1), in a vacuum chamber and decreasing pressure within the vacuum chamber to render visible any defects in the tire by shearography,

after deformation, when the tire tends to gradually resume original shape constituting the whole-body or undesired deformation, subtracting the whole body or undesired deformation from combined total deformation.

50. (new) Apparatus for recording deformation of an object (1), comprising a measuring device (2) structured and arranged for recording a sequence of images of the object (1) during deformation,

an evaluation device structured and arranged to determine phase images from the respective recorded images, forming a differential between two sequential phase images ($n + 1$, $n + 2$), and adding the differential to a first image, whereby incremental deformations are integrated to provide total deformation of the object (1), and

a line (3) interconnecting said measuring device (2) and evaluation device.

51.(new) The apparatus of Claim 50, wherein said evaluation device is structured and arranged to form a differential between each two sequential phase images ($n + 1$, $n + 2$, . . .), and add each said differential to a preceding image.

52. (new) The apparatus of Claim 50, wherein said measuring device (2) operates by interferometry or projection.

53. (new) The apparatus of Claim 52, wherein the measuring device (2) includes a source for one of coherent radiation, coherent light, partially coherent radiation and partially coherent light.

54. (new) The apparatus of Claim 53, wherein said measuring device (2) comprises at least one laser diode.

55.(new) The apparatus of Claim 50, wherein said measuring device (2) is a hand-held sensor.

56. (new) The apparatus of Claim 50, additionally comprising means coupled to said evaluation device for visualizing the recorded images or phase images as a film.